

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER A-18-52  
Relating to Certification of New Motor Vehicles

VOLVO CAR CORPORATION

Pursuant to the authority vested in the Air Resources Board by the Health and Safety Code, Division 26, Part 5, Chapter 2; and

Pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Orders G-45-3 and G-45-4;

IT IS ORDERED AND RESOLVED: That 1989 model-year Volvo Car Corporation exhaust emission control systems are certified as described below for gasoline-powered passenger cars:

<u>Engine Family</u>	<u>Displacement Liters (Cubic Inches)</u>	<u>Exhaust Emission Control Systems (Special Features)</u>
KVV2.3V5FE8X	2.3 (141)	Exhaust Gas Recirculation Heated Oxygen Sensor Three-Way Catalyst (Electronic Port Fuel Injection) On-Board Diagnostics (Exempted)

Vehicle models, transmissions, engine codes and evaporative emission control families are listed on attachments.

The following are the emission standards for this engine family:

<u>Hydrocarbons (Grams per Mile)</u>	<u>Carbon Monoxide (Grams per Mile)</u>	<u>Nitrogen Oxides (Grams per Mile)</u>
0.41	7.0	0.4

The following are the certification emission values for this engine family:

<u>Hydrocarbons (Grams per Mile)</u>	<u>Carbon Monoxide (Grams per Mile)</u>	<u>Nitrogen Oxides (Grams per Mile)</u>
0.26	1.6	0.1

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Gasoline-Powered Motor Vehicles".

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks" (Title 13, California Administrative Code, Section 2290) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the Board's high altitude requirements and highway emission standards as stipulated in "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles".

BE IT FURTHER RESOLVED: That the listed vehicle models also comply with the "California Motor Vehicle Tune-Up Label Specifications" (Title 13, California Administrative Code, Section 1965) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the vehicle models listed have been granted an exemption from compliance with the requirements of the "Malfunction and Diagnostic System for 1988 and Subsequent Model Year[s]..." (Title 13, California Administrative Code, Section 1968) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed vehicles, the manufacturer has submitted and the Executive Officer hereby approves the materials to demonstrate certification compliance with the Board's emission control system warranty regulations (Title 13, California Administrative Code, Section 2035 et seq.).

Vehicles certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this order and attachment.

Executed at El Monte, California this 26<sup>th</sup> day of August, 1988.



K. D. Drachand, Chief  
Mobile Source Division

Manufacturer VOLVO CAR CORPORATION Engine Family KVV2.3V5FE8X  
Evaporative Family E2/E3 Engine Type L-4  
Liters (CID) 2.3 (141)

## ABBREVIATIONS

Ignition System

CA-Centrifugal Advance  
ECU-Electronic Control Unit  
EI-Electronic Ignition  
ESAC-Electronic Spark Advance Control  
VA-Vacuum Advance  
VR-Vacuum Retard

Fuel System

CFI, EPFI, MPFI, SFI,  
DID, DIP, HOS, OS  
nV-nVenturi Carburetor  
VV-Variable Venturi Carburetor

Exhaust Emissions Control System

AIP-Air Injection - Pump  
AIV-Air Injection - Valve  
EGR-Exhaust Gas Recirculation  
EIC-Electronic Injection Control (Diesel Only)  
EM-Engine Modification  
SPL-Smoke Puff Limiter or Throttle Delay  
TOC-Trap Oxidizer, Continual  
TOP-Trap Oxidizer, Periodical  
DBC-Dual Bed Catalyst  
OC-Oxidation Catalyst  
TWC-Three-Way Catalyst  
WUOC-Warm-Up Oxidation Catalyst  
WUTWC-Warm-Up Three-Way Catalyst  
OS-Oxygen Sensor  
HOS-Heated Oxygen Sensor

Special Features

CFI-Central Fuel Injection or Throttle Body Injection  
EPFI-Electronic Port Fuel Injection  
MPFI-Mechanical Port Fuel Injection  
SFI-Sequential Fuel Injection  
DID-Diesel Injection-Direct  
DIP-Diesel Injection-Prechamber  
TC-Turbocharger  
SC-Supercharger  
IC-Intercooler or Aftercooler  
CCV-Combustion Chamber Valve  
OBD-On-Board Diagnostic

VEHICLE MODELS:

240 DL/GL  
Sedan, Wagon

740 GL  
Sedan, Wagon

Engine: Front X Mid.        Rear         
Drive: FWD        RWD X 4WD Full Time        4WD Part Time       

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## 198 9 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

E.O. # A-18-52Page 2Passenger Cars X Light-Duty Trucks \_\_\_\_\_ Medium-Duty Vehicles \_\_\_\_\_ Gas X Diesel \_\_\_\_\_Manufacturer Volvo Car Corporation Engine Family KVV2.3V5FE8XLiter (CID) 2.3 (141) Eng. Type L-4Emission Control Sys. (Special Features) HOS/TWC/EGR (EPFI/ECU/ESAC/Exempt OBD)

Engine codes	Vehicle Models (If Coded see attachment)  (Dyno Hp)	Trans. Type	Equiv. Test Weight	Ign. System (ECU)  Part No.	Fuel System  Part No.	EGR Valve  Part No.	Catalyst  Part No.
FE8X:1	240 DL/GL Sedan (9.3) Wagon (9.7)	M5 M47	- 3250 3375	0227400140	(CU) 0280000556 (HOS) 0258003034 (AIR MASS) 0280212016	72040111 or 72040121	3 501 957
FE8X:2	240 DL/GL Sedan (9.3) Wagon (9.7)	A4 AW70	- 3250 3375	"	"	72040311 or 72040321	"
FE8X:3	740 GL Sedan (8.4) Wagon (9.1)	M5 M47	- 3250 3375	"	"	72040111 or 72040121	1 389 966
FE8X:4	740 GL Sedan (8.4) Wagon (9.1)	L4 AW70L	- 3250 3375	"	"	72040311 or 72040321	"

Comments: See page one for abbreviations and evaporative emission family identification. Please refer to manufacturer's HP list for correct dyno test HP settings based on model and equipment. If two test weights are listed, the lower weight will be used for testing.

Date of Issue \_\_\_\_\_ Revisions: \_\_\_\_\_

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